The Impact of Socio-Cultural dimensions over the Dynamic Adaptation of Vernacular Dwellings

The case of Esna's traditional vernacular architecture in Egypt

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ABSTRACT: This paper is part of a broader study on the interpretation of vernacular architecture in modernising heritage contexts in Egypt. It considers processes of change in traditional vernacular architecture, using the example of Esna in Upper-Egypt. The study proposes phenomenology as an approach to study, analyse and interpret processes pertaining to production, use and adaptation of traditional vernacular architecture through time. Data gathering methods included focused observations, sketches, and diagrams of different aspects of the traditional settlement, and sampled houses from the nineteenth and twentieth centuries in Esna. Utilizing Lefebvre's theory of the production of space, the analysis uncovers the interconnection between architectural form and materiality, lifestyles and cultural norms, and the dynamic configuration of traditional vernacular dwellings through time. Socio-cultural dimensions including social-structures, and cultural values of privacy and gender segregation are core values governing the spatial configuration of traditional dwellings and their continued adaptation through time. Malleability, durability, adaptability, and logicality are key principles pertaining to the dynamic nature of traditional vernacular architecture in Esna. A discussion follows over the implications of this interpretation over current approaches for managing change in modernizing vernacular heritage contexts in Egypt and beyond.

KEYWORDS: Vernacular architecture, phenomenology, socio-cultural dimensions, modernisation, dynamic-adaptation, change.

A DYNAMIC VERNACULAR

Egypt has a rich vernacular architecture heritage which is mostly unexplored, much of which is rapidly disappearing today and being replaced with newer buildings using modern materials and construction methods. Change in contexts with significant examples of traditional vernacular architecture is often portrayed in terms of loss, erosion or as an inevitable change in response to overpowering economic forces of modernity and globalization [1, 2, 3]. Such portrayals of change arguably stem from ascribing static qualities to the traditional vernacular, and in the process relegating more contemporary popular building practices to the separate category of informality [4]. By manufacturing this traditional/modern dichotomy, change in traditional vernacular architecture is ascribed to external 'corrupting' forces of modernity and globalization, while the traditional vernacular is assumed as unchanging and static. Such static perceptions of the vernacular as unchanging is reflected in the conventional approaches to its preservation, which albeit being crucial for protecting vernacular heritage in rapidly modernizing contexts, their success in its preservation as living heritage is questionable [5]. Static perceptions of the vernacular which result from product-focused approaches define the vernacular through a set of fixed characteristics derived from exemplar buildings and traditions. However, adopting a process-focused approach reveals vernacular architecture as a dynamic process of ongoing adaptation, rendering buildings and built environments as temporary states in a continuous history [6].

This paper is part of a broader research dealing with the interpretation of change in modernizing traditional vernacular contexts in rural and peripheral areas in Egypt since the 19th century. The study focuses on issues pertaining to the 'traditional' phase, ie. the period prior to the mid-20th century, where traditional building materials used were predominantly earthen based. The study highlights dynamic qualities of traditional vernacular architecture through exploring the case-study of Esna in Upper- Egypt. Using both product and process focused-approach the research investigates issues of materiality and the relevant socio-cultural aspects which influence the spatial configuration and adaptation of traditional mud-brick houses: processes of production, use, and adaptation through time. The paper is divided into two parts: the first presents the background of the case-study, methodological approach to the study, followed by the analysis of Esna's vernacular architecture according to Henri Lefebvre's theory of production of space. The second part discusses some of the key principles pertaining to a dynamic interpretation of the

traditional vernacular dwellings through time and use. This is followed with a brief discussion over how such principles may inform developmental and conservation efforts in modernizing heritage contexts.

STUDYING AND ANALYSING ESNA'S VERNACULAR

Esna is an ancient town in Upper Egypt, approximately 60km south of Luxor, cantered around the ancient Egyptian temple of Khnum (Figure 1). Apart from its importance as an agricultural hub, Esna became an important scholarly centre after the arrival of Islam in Egypt. During medieval times (Mameluke and Ottoman), Esna became an important trading hub with links to North Africa, the Hijaz, Yemen and the far east, and thus was integrated into global trade networks [7]. Historically, the old town of Esna developed as a narrow oval-shaped mound elevated over the surrounding cultivable lands, stretching from north to south and flanking the western side of the river. This oval-shaped mound represents Esna's historical town centre today (Figure 2). The city began to expand beyond its historical borders only from the mid-twentieth century, as the construction of the high dam to the south reduced the extent of annual flooding.

Figure 1: The traditional centre of Esna. To the right is the remaining minaret of the medieval Fatimid Mosque; left is a row of nineteenth and twentieth-century vernacular houses; behind them sits the temple of Khnum (Photo: Ibrahim El-Hadidi, March 2019).

Esna is distinctive for its wealth of vernacular buildings of different eras, some of which is still in full or partial use, yet most of which is rapidly dilapidating. Esna's vernacular heritage has somewhat been neglected in favour of high-status monuments [8], notably the Ancient Egyptian temple of Khnum (Figure 1), and some religious and public buildings from the Mameluke period. Esna's vernacular architecture thus currently remains understudied. Only one recent publication deals with Esna's Islamic heritage, focusing on monumental buildings giving a few cursory accounts of selected nineteenth-century houses [9]. Further, an ongoing urban regeneration and community development project led by the development company Takween, is conducting extensive documentation and physical preservation of examples of Esna's built heritage though no publications have as yet resulted from this activity.

Figure 2: Contemporary satellite image (adapted) showing the borders of the traditional town of Esna until the mid-twentieth century (marked in yellow), surrounded with the post 1960s urban extensions (north to the right) (Source: Google Maps, 2021).

This paper is based on ethnographic findings from fieldwork conducted in Esna for a period of two weeks between March and April 2019. The fieldwork design and methods considered previous studies conducted within similar contexts in Egypt [10, 11, 12], and studies of other contexts with similar conditions [13] [14]. A phenomenological sensibility was adopted while gathering ethnographic material, by seeking to discover the complex and subtle meanings of space [13]. Phenomenology as a methodological approach aims to uncover a phenomenon within its real-life context, thus to articulate lived experience of in relation to the natural and built environments [15]. The approach was found to be well suited to understanding the phenomenon of change in traditional vernacular architecture through exploring processes of production, use and adaptation through time.

Data-gathering methods included focused observations and note-taking, sketching, photographic and video documentation; semi-structured interviews as well as the occasional use of documentary sources to compensate for missing data in the field. For this study, only findings from ethnographic methods were considered namely: focused observations and architectural documentation. Six houses from the 19th century and the first half of the 20th century were selected according to a set criterion including their continued use (full or partial), their adaptation across time, and issues of access and availability for study. Sketches and spatial diagrams were produced during visits guided by residents, which were later fine-tuned

using pictures and videos. Data gathering focused on issues relating to form and materiality, life-styles and activity patterns, and patterns of spatial use and adaptation through time.

Once collected, the data was analysed according to Henri Lefebvre's theory of the production of space. Key to this theory is the view that space is a social construct that may be perceived through 'production processes' which take place in three interconnected dimensions namely: "perceived", "conceived", and "lived". The first relates to aspects of space that can be perceived by our senses (processes of material production); the second deals with the conception of spaces (processes of knowledge production); and the third deals with space as it is lived and experienced which evokes phenomenology (production of meaning) [16]. The analysis applied to this study reveals the interrelationships between architectural form and materiality, lifestyle patterns and culture in relation to spatial configuration and dynamic adaptation of dwellings across time.

Figure 3: A nineteenth-century house from Esna, showing the process of settlement as the building approaches its final stages (Photo: Ibrahim El-Hadidi, March 2019).

UNDERSTANDING ESNA'S VERNACULAR

Materiality and building Life Cycle.

The main building material used in Esna's traditional houses is mud brick, alongside wood (palm wood, sycamore, and acacia) for roof slabs and beams. Prior to the construction of the High-Dam in the 1960s, sun-dried mudbricks were traditionally sourced from the annually deposited silt along the shores of the Nile. The average lifespan of a typical mudbrick building is about 60 years, after which the building often requires significant maintenance, without which the building may start to decay. Periodic maintenance of mudbrick houses was thus typically conducted on a yearly basis. As a building ages, it can settle into the ground, in which case, top floors may be taken down to minimize settlement and to help extend the period of its use (Figure 3).

Eventually the building will be reduced to its ground-floor level and finally taken down. Remaining materials such as wood may be recycled in the newer houses, while old mud bricks may be used as fertilizer (*sebakh)*. Finally, the remaining debris serve as the foundation ground for a new building. Nevertheless, many traditional mud-brick houses from Esna dating back to the nineteenth century and earlier are still standing today, some still in partial use. Characterizing these buildings is their continued use and regular maintenance and adaptation by successive generations of inhabitants. The importance of occupying and using mud brick houses is thus linked to prolonging the life cycle of mudbrick architecture, where regular maintenance allows the building to be used for longer periods.

Social Structures and Cultural Norms

As in most Upper-Egyptian societies, the local community in Esna is divided into families (or clans) inhabiting common (clannish) quarters. This hierarchical structure of the society is reflected in the hierarchy of spaces within the town through the gradual narrowing of streets from the more public spaces to the more private family neighbourhood clusters. This spatial hierarchy which demarcates private, semi-private, and public zones and activity spaces, serves to guide activity patterns within the built environment in accordance with the socio-cultural environment. Gender is another important socio-cultural aspect which is reflected in the nature and organization of activities in the traditional settlement. The traditional used differently according to gender: traditionally men spent much of their daily lives in the fields and on the streets, while women's daily lives were mostly spent within the house. The *dikka* or *mastaba* (Figure 4) is a characteristic feature of traditional mud-brick houses which is a built-up seat, where men could relax during their spare time, observing street activity and conversing with passers-by. The *diwan* is a communal building which was dedicated to important social gatherings for men shared amongst groups of families belonging to the same clan within common quarters. The *mandara* on the other hand, was a space present in every house serving as a guestroom to host male guests and thus placed close to the main entrance to separate it from the inner parts of the house. Occasionally a *mandara* will have its own external access to ensure more

privacy, however, the space may be used for different purposes when not used to host guests. The inner parts of the house are otherwise the domain of the family, and typically for women. Women in traditional societies in the past, while sharing some responsibilities with their husbands, were solely responsible for carrying out different domestic activities within the house.

Figure 4: Typical traditional mud brick house in Esna with mastaba/dikka attached to the main entrance. (Photo: Ibrahim El-Hadidi, March 2019).

Figure 5: On-site study sketches of some houses from the late nineteenth and early twentieth centuries in Esna, demonstrating formal and spatial variations linked to social status and family size. (Ibrahim El-Hadidi, March 2019)

Houses of both rich and poor were juxtaposed within common neighbourhoods, differing in size and appearance according to the social status of owners. This grading is mostly evident in the late nineteenth and early twentieth century houses in Esna. On the contrary, pre-nineteenth-century houses had plain mud brick facades, small openings and minimal ornamentation typically confined to the main entrance, thus social status was expressed through the size and scale of the property. Comparatively, late-nineteenth and early-twentieth century houses feature more elaborate facades with more openings and displaying ottoman and neo-classical influences, all of which more pronounced in the houses of wealthier families (Figure 5).

Privacy and the hierarchical configuration of space

Despite variations in layouts of traditional 19th and early 20th century dwellings in Esna, the analysis reveals an overall logic which determines the spatial configuration of the dwelling and the ways it is subsequently adapted. This may even be demonstrated through using the example of a small house from Esna (Figure 6). The house displays the fundamental configuration necessary for addressing the need for privacy according to local customs and traditions. The ground floor is regarded as the semi-private/semi-public domain where a guest space (*mandara)*, storage (including animals), utility spaces and the staircase are typically found; and where domestic activities are carried out. The more private zones of the house including rooms for family dwelling and sleeping are situated in the upper floor/s away from the social and domestic activities in the ground floor. The upper level of a house typically contains a room hosting a nuclear family (or more depending on the size of the family and the house). This room on the upper floor is typically used both for sleeping and as a common living area shared by the family during the day.

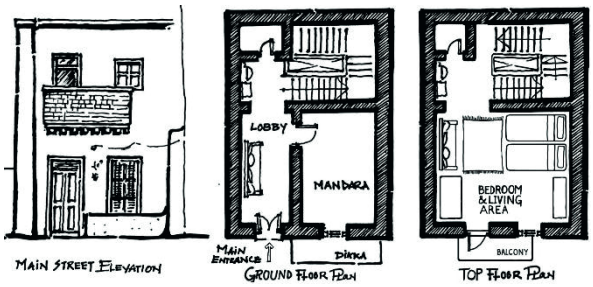

Figure 6: A sketch showing the spatial layout of a traditional mud brick house from Esna. (Ibrahim El-Hadidi, March 2019)

Finally, the roof is used for storage of grain or other agricultural produce, oven baking and spaces for raising birds, as well as other activities carried out by women. Due to privacy concerns, roof parapets were high (almost 1.5 metres) with small openings which allowed women a view of the street without compromising their privacy. On hot summer nights, roofs were used for sleeping. As such, the roof provided an open-air environment for domestic activities and socialization, as well as the necessary privacy for the household and women. Ultimately, the configuration of activity spaces in the traditional dwelling follows a spatial hierarchy which corresponds to functional, and cultural needs.

Adaptation of vernacular buildings over time

The number of floors in a house may change through time according to the growing needs of the household, and in response to issues of materiality. The typical mud brick houses of Esna from the nineteenth and twentieth centuries had two to four storeys. Often built-in phases as extended families grew in number through time to allocate to the growing needs of newly emerging families within the

household. Women typically joined the husband's family house where the couple were allocated their own room which they would continue to inhabit for a few years with their young children until more space was needed. Space was allocated either through the redivision of larger spaces, or through the addition of extra floors. This process continued in response to the family's growing needs, and the structural capacity of the building. After reaching its maximum structural limit, a further level may be added on top using light-weight materials such as pottery jugs (Figure 7). As the building ages, a gradual process of deconstruction takes place, where top floors are gradually removed (Figure 3). The usable spaces (usually the ground floor) of a building will continue to be used by some family members until the building is reduced to its ground floor and is no longer usable. By then, most of the family will have moved out to another house and a new house may be erected to replace the older one.

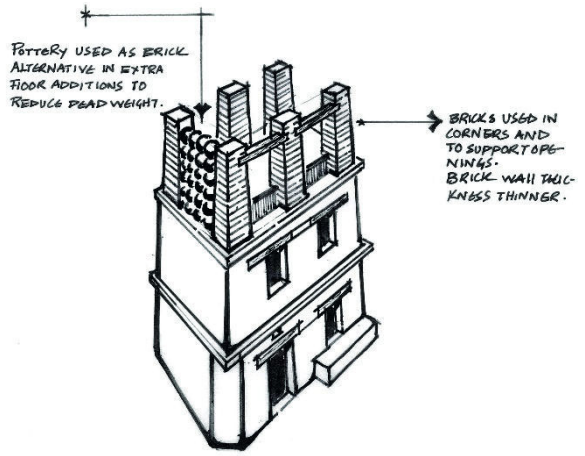

Figure 7: On-site study sketch from Esna, demonstrating the vertical adaptation of a traditional dwelling after reaching maximum vertical limit possible in mud brick. (Ibrahim El-Hadidi, March 2019)

Dynamic Principles in Esna's Vernacular Architecture

The dynamic qualities of Esna's traditional vernacular can therefore be considered in two ways: material adequacy, and spatial adaptability responding to lifestyle patterns and socio-cultural needs.

Availability, Malleability, and Durability

Issues of materiality have been shown to both impact and allow for the dynamic nature of a traditional mudbrick dwelling. The availability and abundance of the material made it the most pragmatic choice, while its malleability allowed the building to be adapted in response to changing needs, notwithstanding its disintegrating nature which requires it to be gradually reduced in size, recycled, and eventually replaced. Durability of mudbricks was historically perceived as problematic as it required regular maintenance. Some of the significant changes observed in the late nineteenth and early twentieth century traditional houses in Esna, especially those belonging to wealthier families, is the introduction of plastering and paint (internally and externally) to protect walls from weathering and abrasion, to reduce the need for regular maintenance, and thus to ensure greater longevity. Furthermore, floor tiling and cement mortar were also used to address hygiene concerns arising from conventional dust floors.

Flexibility, Adaptability, and Logicality

The dynamic nature of the traditional dwelling is also a consequence of changes within the household inhabiting the building over time which required the building and the spaces to be flexible and adaptable. Spaces were adapted for different purposes at different times such as the *mandara* and the roof. Whereas strategies such as the subdivision of spaces and the addition of new spaces vertically or horizontally helps maintain the dwelling's purpose for many generations. The traditional vernacular dwelling is thus not conceived from the start as a final product; rather as continuously changing through time to accommodate the residents' changing needs. Alongside the fact that malleability and impermanence of the building material allows the dwelling to adapt and change in response to socio-cultural needs, there is also an underlying logicality governing the configuration of spaces and their consequent adaptation. This fundamental logic reflected in the sampled dwelling layouts and spatial configuration, allows for gradual adaptive processes to continue without compromising the socio-cultural purpose and requirements of the traditional dwelling. This fundamental spatial logic is also customizable to different spaces and locations, as well as to the specific needs of every household. Therefore this spatial logicality is fundamental in allowing for a dynamic interpretation and adaptation of vernacular dwellings while maintaining utilitarian needs and symbolic meanings of dwellings through time.

Managing Change in Vernacular Contexts

A phenomenological sensibility to the study of change in the case study context, demonstrates some of the dynamic principles pertaining to the production, and use of traditional vernacular architecture through time. This view challenges some of the conventional approaches employed in many vernacular contexts today perpetuating static perceptions of the vernacular and which ultimately aim at freezing buildings in time. Adopting process-focused approaches which acknowledge the significance of preservation of heritage, while accommodating the local pressures for development, may contribute to more sustainable strategies to the preservation of traditional vernacular architecture as living heritage. The contrast between both approaches is manifested in Esna in the conventional high-modernist top-down

planning paradigms, the implications of which has been dealt with in a previous study [8], and the alternative process-focused strategies currently led by Takween in Esna. According to their mission statement on their website, Takween's approach in Esna aims to strike a balance between heritage conservation, tourism needs, and local needs for development. Still in its early phases, the project which began in 2016 is yielding promising results. Takween's efforts focus on the documentation and the preservation of significant vernacular buildings, raising awareness over its value as a form of cultural heritage, and incentivizing and engaging locals in the process. The approach adopted in Esna promotes local participation and community development through different methods including the incorporation of local expertise and labour from Esna (both men and women) as part of the team working in the field. Process-led approaches such as Takween in Esna as well as others elsewhere, sheds light over some of the unaddressed aspects of Egypt's rich vernacular heritage which would be otherwise derelict. This is central for heritage purposes, but also for the advancement of the domain of vernacular architecture studies in the twenty-first century. Researchers and architects can thus better engage with/ and learn from exemplary forms of vernacular architecture as it existed in the past, adapted through time, and as it is transformed today. More research is needed to evaluate the impact of process-led approaches over the long-term preservation of exemplary vernacular contexts undergoing change.

CONCLUSION

Vernacular architecture as a reflection of its social and cultural reality, is best understood as living architecture. Adopting a phenomenological sensibility and considering both product and process has helped highlight some of the dynamic qualities of traditional vernacular architecture and the underlying governing logic structuring spaces. More research is needed to highlight the different interpretations of this logic through the development of vernacular architecture through time and across typologies. Further research is needed to elucidate the impact of current developmental and conservation approaches over the dynamic processes pertaining to traditional vernacular dwellings as living architecture. Finally, to bridge the gap between preservation and development, more research on how the dynamic principles of traditional vernacular architecture may be incorporated into contemporary housing schemes. Those issues will be dealt with in future publications as part of this research project.

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